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| 10/516,428 | 11/30/2004 | Francis Chi | 550/9-2011 | 4964 |

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| EXAMINER | |
|---|---|
| SZPERKA, MICHAEL EDWARD | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/516,428 | CHI ET AL. | |
| | Examiner | Art Unit | |
| | Michael Szperka | 1644 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *07 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-30 and 34-43* is/are pending in the application.

4a) Of the above claim(s) *1-23,27, 28, and 43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *24-26,29,30 and 34-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on February 27, 2007 and May 7, 2007 have been entered.

Claims 31-33 have been canceled.

Claim 24 has been amended.

Claims 1-30 and 34-43 are pending in the instant application.

Claims 1-23, 27, 28, and 43 stand withdrawn from consideration as being drawn to nonelected inventions and species. See 37 CFR 1.142(b) and MPEP § 821.03, for reasons of record set forth in the restriction requirement mailed October 11, 2005.

Claims 24-26, 29, 30, and 34-42 are under examination as they read on administering antibodies that bind adipocyte plasma membranes to reduce adipose tissue content.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 24-26 and 29-42 stand rejected under 35 U.S.C. 103(a) as being obvious over Flint (US Patent No. 5,102,658, of record as reference AB on the IDS received 3/4/05, see entire document) in view of Lee (US patent No. 5,367,054, see entire document).

The office action mailed 3/22/06 states:

> Flint teaches a method of administering antibodies raised against adipocyte plasma membranes to target animals in order to decrease adipose tissue mass in the target animal (see entire document, particularly the abstract, claims 1-3, and lines 19-23 of column 1). He further teaches that the administered antibodies can be made in an animal that is evolutionarily removed from the target animal in which a decrease in adipose tissue is desired (see particularly lines 26-30 of column 1 and Example C). Note that in working example C, rats were administered anti-rat adipocyte plasma membrane polyclonal antibodies that had been made in sheep. Particularly desirable target animals for the treatment methods taught by Flint include humans, lambs, cows, and pigs (see particularly lines 19-23 of column 1 and claim 3). The teachings of Flint differ from the instant claimed invention in that Flint does not specifically mention that egg laying animals are to be used to produce anti-adipocyte antibodies and Flint does not indicate that anti-adipocyte antibodies are to be orally administered.
>
> Lee teaches methods of producing IgY antibodies from the yolk of chickens and other egg-laying animals such as reptiles, amphibians and fish (see entire document, particularly the abstract, lines 5-10 of column 1, and claims 1-15). Antibodies produced in eggs enjoy the advantages of increased specificity against mammalian proteins, low cost, convenience, and compatibility with animal welfare regulations (see particularly lines 34-47 of column 1). Additional advantages of egg yolk antibodies are that they can be easily administered in food and in other compositions suitable for oral ingestion (see particularly lines 29-33 of column 1 and lines 30-40 of column 3).
>
> Therefore, a person of ordinary skill in the art at the time the invention was made would have been motivated to administer anti-adipocyte plasma membrane antibodies to a target animal to reduce adipose tissue mass in the target animal as taught by Flint using anti-adipocyte plasma membrane antibodies produces in egg laying animals such as chickens as taught by Lee to gain the advantages of low cost antibodies that can be incorporated into food for increased ease of administration to patients as was also taught by Lee.

And the office action mailed October 30, 2006 states:

> Applicant's arguments filed 8/22/06 have been fully considered but they are not persuasive. Applicant argues that Flint teaches away from making the instant invention, and as such there is no motivation to combine the references. The argument begins with applicant stating that column 1, lines 51-53 would lead a skilled artisan away for the claimed invention. The indicated passage teaches:
>
> > "Antigenic adipocyte material is *usually* derived from the same species, and preferably the same strain, as the animal to be treated with antibodies." (emphasis added by examiner)

and applicant states that in the language of the instant invention "the same species" and "the animal" refer to the source animal and target animal.

This argument is not convincing because a common source and target animal appears to only be one embodiment of the invention of Flint. Flint does not teach that his method will not work if the source animal and target animal are different species, and the scope of his patented claims are not limited in this manner. Further, no claims positively recite that the source animal and target animal are different species, and indeed claim 34 recites "wherein said target animal and said source animal belong to the same species". As such, applicant is arguing limitations not claimed.

Applicant's second argument is that Flint further teaches away in column 2, lines 8-13. This passage teaches:

"It will be appreciated that when antibodies are derived directly from an antiserum, the donor is *preferably* a relatively large animal differing, as hereinbefore described, evolutionally from the antigen donor."

and applicant remarks that "the donor" refers to the production animal, i.e. the egg-laying animal of the claimed method. Given that most egg-laying animals are small, applicant concludes that the passage teaches away.

This argument is not convincing because the antibodies used in the methods taught by Flint do not need to be derived from serum. A skilled artisan knew at the time the invention was made that a when using serum-derived antibodies, increased animal serum volume correlates with increased antibody yield from serum, but large animals are only preferred, not required. Further, serum is not the only way to obtain antibodies, and Flint specifically teaches other methods of obtaining antibodies for use in his methods, such as hybridoma production (see particularly lines 48-50 of column 1. The reason for using large serum donors or hybridoma production is so that large quantities of antigen-specific antibody can be produced. Lee teaches that large quantities of antigen-specific IgY can be easily produced from eggs.

Applicant also argues that Lee does not provide motivation to combine the references because "Lee is directed to the therapeutic use of antibodies and is not concerned with reducing adiposity in animals, and Lee is concerned with antibody purification" and because "the claimed invention is directed to a non-therapeutic method".

This argument is not convincing because reducing adiposity by administering anti-adipocyte IgY is clearly a therapeutic use. Any in vivo method (such as administering an antibody) that has a demonstrable effect on the patient (i.e. the subject to whom the antibody is administered) is therapeutic. Further, Lee discusses at purification at length because as he states in the *Background of the Invention*, prior art methods for isolating IgY did not make large quantities of IgY suitable for the production of kilogram levels of antibodies, yet his method does yield sufficient quantities for use as pharmaceuticals and food additives.

Applicant argues that Lee does not teach adipocytes as antigens and that the antigens of Lee are limited to bacterial antigens.

This argument is not convincing because Lee teaches "The selection of other suitable antigens is within the knowledge of one of ordinary skill in the art." (see lines 25-27 of column 8) and Lee does not need to teach adipocyte antigens since the claims are rejected as obvious rather than anticipated.

Applicant's last argument is that since no one published art that anticipates applicant's invention in the 12 years between the issuance of the Lee patent and the filing of the instant invention, the invention cannot be obvious.

This argument is not convincing because lack of anticipation and a rejection under 35 USC 102 does not impede an obviousness rejection under 35 USC 103. As discussed above, at the time the invention was made, a skilled artisan would have been motivated to combine the teachings of Flint and Lee to arrive at the claimed invention for the reasons of record.

Applicant's arguments filed May 7, 2007 have been fully considered but they are not persuasive. Applicant first argument is argue that there is no motivation to combine based upon arguing the cited references individually.

This argument is not persuasive. In response to applicant's arguments against the references individually, applicant is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant is further reminded that the courts have repeatedly ruled that motivation to combine elements can be explicitly or implicitly stated in the prior art or come from common knowledge of an artisan or common sense, and that for patentability, improvements to or combinations of prior at elements must amount to more than the predictable use of the prior art elements according to their established functions. See *KSR Int'l Co. v. Teleflex, Inc.*, 2007.

Applicant's second argument is to repeat arguments already of record that the references of Flint and Lee teach away from the instant claimed invention.

This argument is the same as of record, is not persuasive for the reasons discussed in the office action mailed October 30, 2006, and will not be discussed further.

Applicant's third argument is that it is unexpected that an orally administered antibody demonstrates greater therapeutic efficacy than the same antibody administered by injection.

This argument is not persuasive. It appears that applicant is arguing unexpected results based upon the data presented in the specification as Experiment II beginning on page 25. In this experiment, rats were administered antibodies specific for pig adipocytes wherein the antibodies were produced in the egg of a chicken. The data indicate that rats that were orally administered antibody lost more weight than rats receiving antibody subcutaneously.

The reason that applicant's argument of unanticipated results is not persuasive is because a demonstration of unexpected results must be commensurate in scope with

that which is being claimed. In the instant situation, the claimed methods are not limited to the precise conditions disclosed in Experiment II, and thus the claimed methods are broader in scope than the experiment. If the results of experiment II are "unexpected", a skilled artisan would not reasonably expect that other conditions, such as the use of other source and target animals, or the use of antigen preparations prepared from other animals or prepared using methodologies other than the exact protocol used in the disclosed experiment, would have the same "unexpected" outcome. Further, the instant claimed methods do not recite any standard of efficacy, and as such the efficacy of oral versus subcutaneous administration is not particularly relevant since the claims have been rejected based upon the obviousness of orally administering anti-adipocyte antibodies made in eggs.

The rejection of record is maintained.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. The rejection of claims 24-26 and 29-42 under 35 U.S.C. 112, first paragraph, for the recitation of "administering a *non-pharmaceutical* composition" has been withdrawn in view of applicant's claim amendments received May 7, 2007 that remove this terminology from the instant claimed invention.

7. The rejection of claims 24-26 and 29-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter for the recitation of "...administering a non-pharmaceutical composition including an effective amount of an antibody..." has been withdrawn in view

of applicant's claim amendments received May 7, 2007 that remove this terminology from the instant claimed invention.

8. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the dependent claim recites that a method of reducing a content of adipose tissues in the body of a target animal by orally administered antibodies is "non-therapeutic". The specification does not appear to define what applicant intends to encompass by the recitation of the term "non-therapeutic". The claimed method occurs in vivo, hence the reduced adipocyte content of the target animal recited in the preamble. In vivo methods can be diagnostic, rather than therapeutic, but the instant claimed method cannot reasonably be considered diagnostic because it results in reduced adipocyte content. Given that the recited method yields an observable change in the target animal, it appears to be a treatment method, and hence "therapeutic", but given the positive recitation that the method is "non-therapeutic", the metes and bounds of the instant invention are not known.

9. No claims are allowable.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Szperka whose telephone number is 571-272-2934. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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June 26, 2007